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The impact of economic policies over the agricultural sector in the southern hemisphere: The case of Argentina, 1980 – 2006

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Abstract

The aim of this paper is to analyze the impact of the economic policies on the Argentinean Agricultural sector for the period 1980-2007. By evaluating the changes that have been taken place in the production styles and the role played by the rise in profitability of cereals, oleaginous crops and beef cattle, we seek to identify the main elements that will allow us to understand the general path that the sector has taken for the period under analysis. After explaining the general evolution of the sector, we end up our analysis identifying the future challenges that the country will face regarding food security, health regulations and environmental problems.

Keys words: agriculture, livestock, profitability, food security, Argentina.

The impact of economic policies over the agricultural sector in the southern hemisphere: The case of Argentina, 1980 – 2006

Juan E. Santarcángelo[1] *y Juan Fal*[2]

1. Introduction

All along the XX century the evolution of the agricultural sector has been strictly linked to the economic and political life of the country, and its importance has been essential since the sector has provided not only food for the population but also foreign currency and income to the government. Nevertheless its role as engine of economic development has varied along the years hand in hand with the changes in the accumulation process. Thus, form the beginning of the XX century until approximately 1930, the economy of the country was intimately linked with the agricultural sector and the production of natural resources, in a scenario where the international demand was crucial for the growth of the sector; and the production process was guided and determined by the imports of technology and new productive techniques (animal genetics, rodeo handling, seeds, etc) from the developed countries.

With the fall of the international prices, the decline of the external demand of primary goods and the depletion of the agricultural frontier, the country modified its model of development, which, from the thirties until the middle of the seventies, will be based on industrialization by imports substitution. This change left the agricultural sector alien to the effects of the internal dynamics of the productive processes, as well as to the international changes, such as the so called green revolution (Mallon and Sourrouille, 1973). When the military coup seized power in 1976 the country started a new accumulation process often characterized by liberalization with financial hegemony or as a model of financial valorization of capital (Rapoport, M. 2000; Basualdo, E. 2006). The economic and social transformation experienced by the country was consolidated by the subsequent democratic governments that guided the country from mid eighties until our days.

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In this context, the agricultural sector started to experiment a conjunction of transformations, which have been the focus of a large variety of studies and that can be categorized under three main categories: the regime of land tenancy, the subject that leads the process of change in the sector, and the modifications introduced in the productive system. A correct understanding of every one of these topics and their interrelations is a necessary condition to achieve a correct characterization of the agricultural sector as a whole, and it is a must know for policy makers trying to apply accurate economic policies.

In line with these discussions, a particular controversy has been established regarding the reasons that explain the progresses and the regressions of the agricultural sector in the last twenty five years. One the one hand, there is a line of argumentation that highlight the influence of the macroeconomic transformations undertook by the country and its positive impact on the technological development of the sector and on the evolution in the levels of production (Sonnet, 1999; Reca, L. y Perellada, G. 2001; Bisang, R., 2003; 2008); while another group of scholars are pointing out the environmental, economic, political and social consequences that the changes experienced during the nineties by the sector (Teubal, 2003; 2006; Azcuy Ameghino, 2002; Pengue, 2004), focusing on phenomenon's such as the productive concentration of the agricultural sector (Lattuada, 1995; Basualdo, 1996; 2006; Basualdo y Khavisse, 1993) and its counterpart, the displacement of those who could not successfully face the changes experimented (Grass et al, 2005; Giarraca, Grass, Barbetta, 2004).

This prolonged and stimulating debate has permitted to put into discussion the main characteristics of the productive system of the agricultural sector, and its relationship with land concentration, the productive transformation of the sector and the role of the government policies in the sector's performance. In this context, the present paper has the main objective of studying the economic policies applied by the Argentinean governments during the period of 1980-2006 in order to evaluate their impact on the agricultural sector, with the aim of evaluating the changes that took place on the production process and on the profitability of the cereals, the oleaginous and the bovine cattle. The goal is to identify the key elements that will allow us to unveil the reasons of

the progresses and regressions of the agricultural sector as well as the future challenges regarding food security, health regulations, and environmental issues.

According to this, the paper has four sections. In the next one, we study the economic policies applied during the period 1980-2006. In the third section, we analyze the impact of these policies over the profitability and the production process of oleaginous and bovine cattle, paying special attention to the transformations that had occurred during mid-nineties. Finally, we analyze, in light of the economic policies applied, the main future challenges that the economy will face regarding food security, health regulations, and environmental problems.

2. The economic policies in Argentina, 1980-2006.

The military coup that seized power in 1976 knock down the basis of the economic development model based on industrialization by import substitution, and implemented a new accumulation path which can be characterized as a model ruled by the financial valorization of capital. In this context, the main objectives of the Economic Minister of the de facto government, Alfredo Martinez de Hoz, were to eliminate all State intervention and regulation of the market and regarding the agricultural sector, the main policies applied were towards raising productivity, expanding the agricultural frontier and modernizing the sector with the incorporation of new technology.

In the minister diagnosis, the main cause of the sector's stagnation rested on the lack of investment due to the unfavorable relative prices associated with the group of protectionist policies that were applied during the previous years. Therefore, the natural solution for the government was to eliminate all retention's to the agricultural exports and to reduce to its minimum level any interference in the commercialization process. As a consequence of this, the *Junta Nacional de Granos (National Board of Grain)* which was in charge of controlling and regulating all grains production, saw a reduction in its activities to the fixation of a ceiling price for the case in which the international prices went below certain minimum limits.

But the main goal of the military coup was to change the accumulation pattern of the country (Basualdo, 2006; Santarcángelo y Pinazo, 2008). Since 1977, the economic

policies applied by the Ministry of Economics, defined price stabilization and monetary equilibrium, as the central targets of the economic policies. In order to do this, an impressive financial reform was undertaken, which had two effects: a rise in speculative investments; and a reduction in the State control of the financial sector (Santarcángelo, 2009). As a result of these measures, the financial reform along with the fall in the international prices of goods related to the bovine sector, not only modified the role played by the working class in the production process, but also determined that the government income (which was very dependent on exportations), was severely reduced.

The impact of the liberalization of the economy on the labor market was dramatic and during the first year, real wages fell 33%. And what it is more important, slowly all the resources were attracted by the financial sector which started to undermine the agricultural possibilities to grow since the producers started to find out that financial activities were more lucrative than the ones linked to the exploitation of natural resources.

The first constitutional government that assumed in 1983 found a country immersed in a severe economic recession, with levels of unemployment, inflation, and external indebtedness that were inedited for the country. The strong disequilibrium in the public income due to the extreme liberalization guided the government administration to take several stabilization planes as well as some control price policies which did not work as planned. However, even though under the first democratic administration, the State assumed a different role, Alfonsin's government did not pursue a different economic plan from the one imposed by the military dictatorship. In this sense, this administration preserved and helped to consolidate the accumulation model instituted by the facto administration.

At the end of the eighties, the country was suffering a strong inflationary process, the de-industrialization processes was beginning to get consolidated, the country was suffering a huge outflow of capital, and the speculative investments was the dominant investment[3]. The country was submerged in a severe economic stagflation, which derivate in a quick rise in the indicators of poverty and indigence. In this difficult

[3] For more details over this period, see Basualdo, 2006; Azpiazu and Notcheff, 1994, Santarcángelo, 2009, among others.

context, and with the goal to stop the hyper-inflationary process that has been trigger at the beginning of 1989, the new government of Carlos Menem, applied a series of measures that instead of reverting the de-industrialization process helped to consolidate it. Thus, the financial and commercial liberalization were complemented with the instauration of the Convertibility Plan, which fixed the parity of the dollar to the peso, and forced the Central Bank to maintain the foreign currency in a proportion not inferior to the 80% of the monetary base. The new parity helped to stop the hyper-inflation but it really meant an appreciation of the peso, establishing a set of relative prices that were adverse to the agricultural sector. An overrated rate of exchange, in a context of total complete liberalization of the markets, without any control of the agricultural production, proved to be very prejudicial for the sector.

The plan of the new administration was to deregulate the economy by deactivating the institutional net that had regulated the agricultural activity since the thirties. Thus, several government organisms, which were in charge of an absolute minimum articulation and control of some agricultural activities, were eliminated by the decree nº 2.248 in 1991. Among the more important control institutions eliminated we can point out the Junta Nacional de Granos y Carnes, el Instituto Nacional de Vitivinicultura, y la Dirección Nacional de Azúcar[4]. The disappearance of theses organisms had a strong impact on the agricultural sector which made particularly damage to the small and medium producers (between 1988 and the end of the XX century 56.330 bovine cattle exploitations disappear, all of them belonging to small and medium producers). This new conditions of production, in spite of a small rise in the efficiency per hectare, lead the sector to an impressive process of concentration and centralization of the land and the production, since most of the producers were not prepared financially and economically to change their old productive practices for this new system (Isla, C., 2003).

In a context of social and economic depression, the government of the Alianza, which assumed in 1999, continued with the general economic principles that guided the previous administration and the economic policies applied were very similar to the ones carried out under the Menemismo. As a result of this, the country that was coming from

[4] The National Board of Grain and Meet, The National Institute of Winegrowing, and the National Direction of Sugar.

a deep recession became worse; and in December 2001, the country suffered its worst economic and social crisis of its history. The social uprising was total and the country had five presidents in eleven days. The last one, Eduardo Duhalde, last in power over one year and a half, an abandon the fixed rate of exchange and declare a default of a large part of the external debt. The derogation of the convertibility plan and the devaluation of the peso, modified relative prices in favor of the goods produced by productive sectors, which slowly lead the country into a recovery path. Moreover, in a context of low interest rate, it was no longer profitable to valorize capital in the financial sector; and gradually redirect investments to the productive sector which started to reassemble the economic and social tissue.

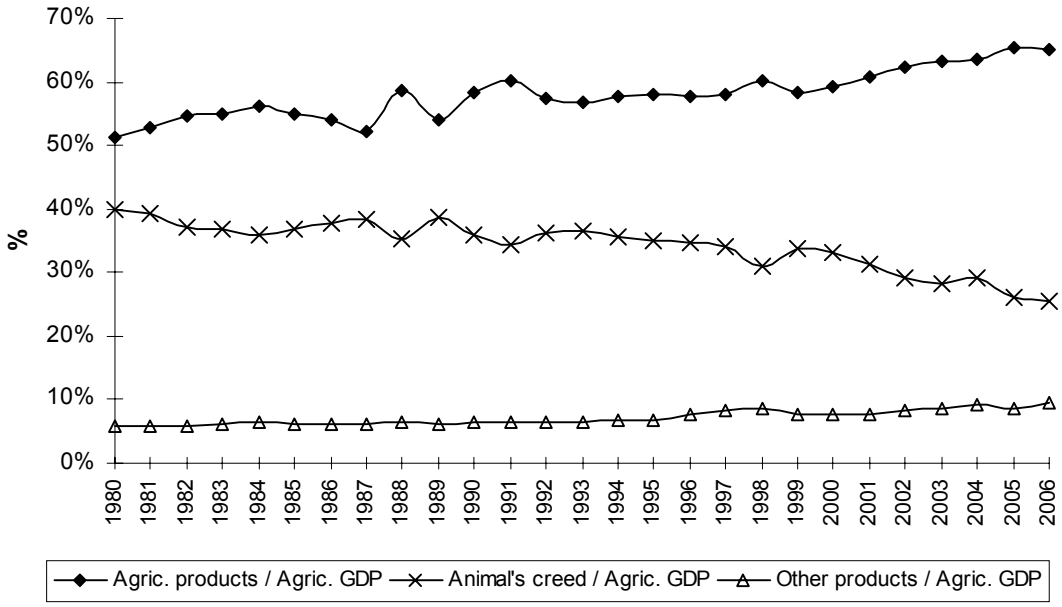
The period initiated in 2003, with the arrival of Nestor Kirchner, can be characterized in economical terms, as a continuation of the period initiated in 2002 by Duhalde's administration. The policy of a high rate of exchange, with the subsequent fall of the real wage of the working class, helped to reconstruct the profitability of most productive sectors, and allow the country to regain a commercial surplus (due to the performance of the agricultural exports). The substantial changes in relative prices plus the extraordinary evolution of the world market prices of agricultural products helped the sector to recover.

The deprecation of the peso deepened the changes initiated in the eighties in relation to the agricultural profitability while it has permitted to increase in a substantial way the exploitation margins. In spite of the real wage contraction and the close of external markets in 2001 (due to the hoof-and-mouth disease), the bovine sector recovered absolute profitability in 2002, while relatively profitability did not perform as well as the former and other products (particularly soy) were more lucrative. Therefore, due to this dynamics, the agricultural crops increased their participation in the agricultural product in 3 percentage points in the period 2003-2006, while the animal breeding reduces its own in the same magnitude.

3. The impact of economic policies over profitability and the production process of oleaginous grain (soy) and bovine cattle.

The economic policies applied since the eighties in the country did not modify the agriculture participation on GDP, which has been around 5% for the period 1980-2006. Its production is highly concentrated being the agricultural products and animal's creed more than 90% of the production of the sector during the last twenty five years. However, the participation of these components was not constant throughout the period. Figure nº 1 is an eloquent expression of this situation, in which we can observe that agricultural products and the bovine creed production behave like a sort of mirror for the overall period under analysis. While the first one increases its participation in 14%, the creed reduces its importance in the same magnitude. The rest of the activities (hunting, forestry, and agricultural services) maintained a moderate rising tendency in the years under analysis and never represented more than 10%.

Figure nº 1 – Evolution of agricultural products and animal's creed in relation to the total agriculture GDP, 1980-2006



Source: Own elaboration using the information provided by the INDEC

Making a further analysis of the evolution of agricultural production since the eighties to the end of the period, we can identify three different periods: 1980-1987, 1987-1996 and 1996-2006; which were modified, by changes in relative prices, the appearances of diseases (as the hoof-and-mouth disease), technological advances and government policies (which also acted as a strong conditioner of the other variables).

Regarding the first period, as soon as the eighties decade started, we find a fall in bovine's price, determining a rise in the relative profitability of the agricultural sector in relation to the animal's creed (the 80% of this last sector is explained by the bovine's creed[5]). This process was intensified during the 1983/84 campaigns where the rise of the international price of the cereals and oleaginous incremented the exploitation margins of the principal agricultural activities (wheat, soy and grain).

As soon as the second period started, the price of the cereals raised considerably (for example, during 1988-89 the grain and wheat rose 90% and 52% respectively), allowing the exploitation margins to grow in the agricultural sector. This determined a rise in the exploitation margin of the grain, wheat and soy of about 50%, 17% and 89% respectively. These changes induced the producers to modify the allocation of their production which started to use a larger part of land in the production of cereals and oleaginous grain, which led to a rise in the breeding production participation of the aggregate agricultural product from 52% in 1987 to 57% in 1997.

During the mid-nineties, the agricultural sector suffered an important transformation guided by Menem's administration which will give rise to the third period of our analysis. This period has the particularity that gave rise to the introduction and utilization of the glyphosate[6] in the local agricultural production. This technological development was crucial for the definition of the type of productive activity that the producer chose since it raised the exploitation margin of soy production in relation to the ones that can be obtained in the rest of the agricultural activities[7].

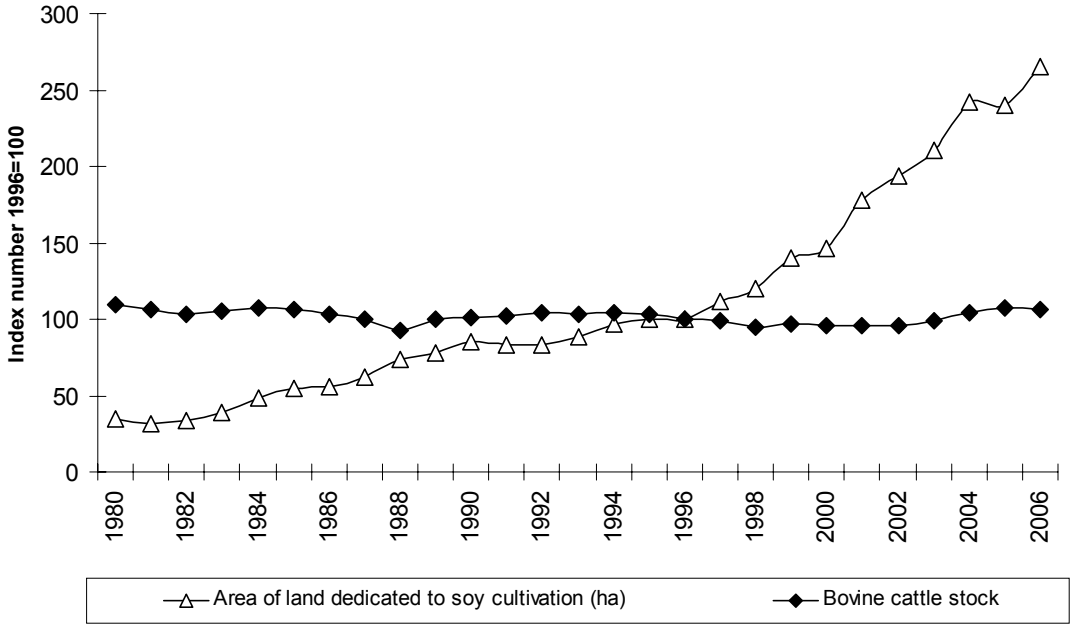
[5] As a consequence of this relevance and the availability of data, from now on we will analyze bovine creed.

[6] There is a vast controversy over the effects of the transgenic soy and its technological package (glyphosate included) in matters of the soil and the life of the people (for further information see Teubal 2003). This issue will be treated in more detail in the next section.

The glyphosate is used to combat the scrub, and was introduced in Argentina by Monsanto. Monsanto was funded in 1901 by Francis Queeny. During Vietnam war it developed for the American government the so called "orange agent" which was used to weed the jungle impeding the vietcong from hiding. The problem was that this herbicide produces a derivative known ass TCDD which can not be eliminated and leads to foetus malformations. Because of this, Monsanto has been sued several times no only by the vietnamit citizens but also by the American ones (for further information see Alicia Ortiz, 2008). At the present, the effects that come with the fact that a transnational conglomerate is the impeller of such techniques in a delicate issue such as alimony is being object of debate. The controversy is being carried around the dependency that this generates to undeveloped countries (see Teubal, 2003)

Throughout this process and in particular during this last period, the State has played an essential role not only through the deregulation of many markets but also with economic policies that helped the imports of technology from developed countries. This is the main reason that explains the evolution of the bovine cattle and the agricultural products as soy, which rose from 5 millions ha in 1988 to 16 millions ha in 2002. As we can see in figure nº 2, during the same period, the bovine production remained stable.

Figure nº 2 - Evolution of the bovine cattle stock and the area used in soy cultivation (ha), 1980-2006, (Index number 1996 =100)



Source: Own elaboration using the information provided by the INDEC and *Margenes Agropecuarios*

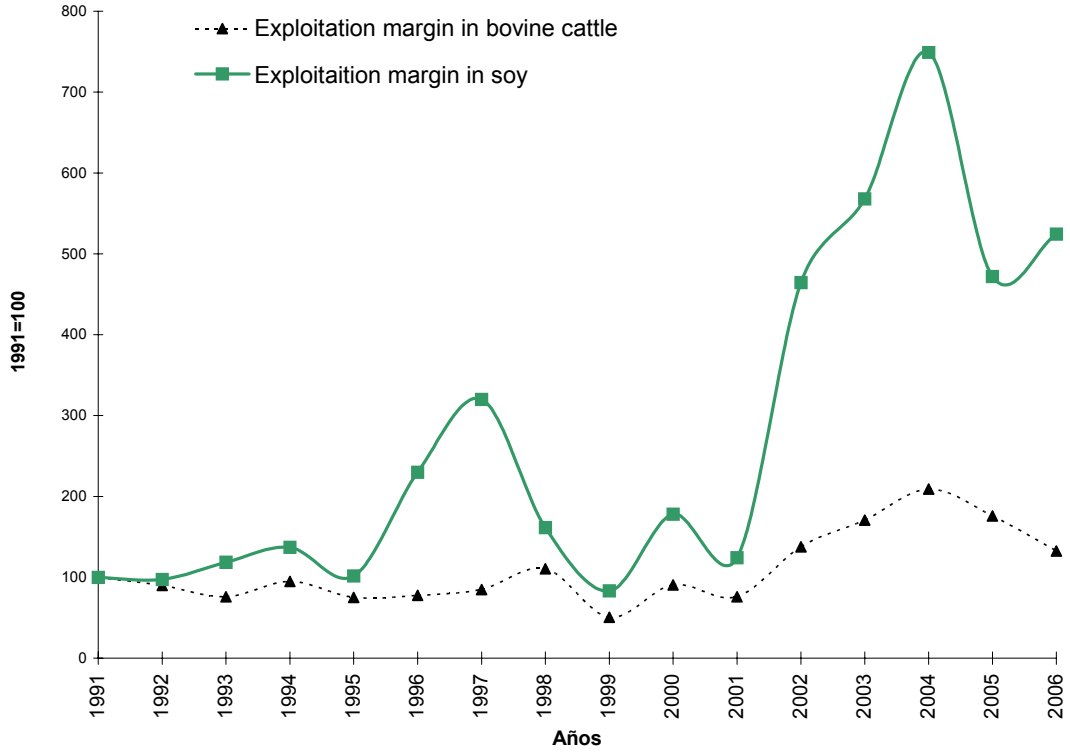
As a consequence of this evolution, the soy has become the most important crop in Argentina, whose most relevant productive center is located in the core of the Pampa's area (especially in Buenos Aires, Córdoba and Santa Fe). The soy cultivation, with the utilization of glyphosate, allowed producers to increase the profits of the farming firm and solve the weed problem and the high cost of herbicides (which represented around 30% of the exploitation margin). In this respect, the amount of active principles used was reduced from more than 30 synthetic molecules available in 100 different products into one: the glyphosate. Consequently, between 1997 and 1998, 132 millions litters of

[7] Further developments on this issue, will be developed in the next pages.

agrochemical were sold, which entail around a 7 % higher load for the environment (Pengue, 2000).

The main reason behind the evolution of the agricultural sector, and within it between agricultural products and animal's creed, is given by the evolution of the relatively profitability. In Figure nº 3 we present the main evolution of the exploitation margins of soy and bovine cattle which as we saw previously are the leading products of each group.

Figure nº 3- Evolution of the exploitation margins of bovine cattle and soy, 1991-2006 (Index number 1991 =100)



Source: Own elaboration using the information provided by *Margenes Agropecuarios*

The Convertibility Plan made the imports of technology more accessible and provided the possibility to implement the packages of transgenic seed (which suppose the utilization of glyphosate). And the results were impressive, since the new technology, permitted to diminish the costs of production – less cost for the herbicide, insecticide, labor, machinery's and fuel – in about 15% (Pengue, 2001),which strongly modified the exploitation margins of the soy crop, which have grown over a 40% since the 1996/97

campaign; and reaching the margin about U$S 450 per hectare, as we can see in figure nº 3.

Until 1995 it did not exists a great difference in terms of evolution between the margin evolution of the soy and bovine cattle. However, since 1996 the exploitation margin of the soy grows about 126% while the bovine cattle does it only 3%. This was the year in which the transgenic seed was massively implemented and the differences grew even bigger with the 2001 depreciation of the peso. It is important to remark, that the evolution just mentioned is registered when the bovine margins have reached its historic highest level at the beginning of the new century. Therefore, as we can see in Figure nº 3, in the year 2004 the profitability of the bovine cattle reached $258 per ha, while the soy touched $952 per hectare (both in constant pesos of 1996) [8].

However, not only there were differences in the evolution of the exploitation margins, but also, and centrally, in the profitability magnitudes of both types of productions. While in the year 1991 the exploitation margin of the soy and the bovine creed was 127$/ha and 123$/ha respectively; during the year 2002, the differences grew bigger, reaching the soy and the bovine creed 590$/ha and 170$/ha respectively. Even in the years when the particular evolution of both products was similar, the profitability of the soy was much higher than the bovine creed, as we can see, in the year 1999, were the soy reaches 106$/ha while the production of the bovine sector achieves only 62$/ha.

Because of the higher relative profitability of the soy regarding to the cattle farming, a re-localization process of the cattle took place and the producers has moved the livestock every year to less productive lands, leaving the better ones for soy cultivation. The information is presented in Table nº 1. As we can see in the Table, the Pampean region concentrates most of the bovine cattle being Buenos Aires, Cordoba and Santa Fe the states that concentrates more livestock. Comparing 1974 and 2002 we can see a clear movement of the livestock from fertile lands towards other regions less productive (Cuyan, Northeast and Patagonic).

[8] According to the CEPAL and the Bovine Promotion Institute, during the second semester of 2006, the profitability rate of the breeder sector of bovine cattle was 18% over the sale price, while the soy reached a 30% in one semester.

Table nº 1 – Distribution of bovine cattle per region, 1974-2002 (%)

Region / State	%		Variation of bovine cattle stock 1974-2002 in %
	1974	2002	
Pampean Region	**80,2**	**76,5**	**-16,2**
Buenos Aires	38,9	36,8	-16,8
Cordoba	15,1	12,6	-26,8
Entre Rios	8	7,8	-13,8
La Pampa	5,4	6,5	3
Santa Fe	12,8	12,8	-12
Northwest Region	**3,6**	**3,6**	**-12,9**
Cuyan Region	**2,5**	**3**	**8**
Patagonic Region	**1,5**	**1,9**	**11,5**
NorthEast Region	**12,2**	**15**	**8,2**

Source: Own elaboration using the information provided by SAGYP, Basualdo and Arceo (2006).

However, the soy advanced not only gained land over the cattle production, but also over the rest of the agricultural productions, as wheat, corn, sunflower and rise; all of them crucial in order to guarantee the alimentary sovereignty of the country. As we can see in the Table nº 2, the hectares sown by the 5 most important agricultural productions, which explain 97% of the total land in production, were duplicated between the 1980-81 campaign and 2005-06 from 13 to 27 millions ha; evolution that is entirely explained by the soy production. Thus, while the soy increased 657% between 1980 and 2006, the rest of the agricultural productions barely change. It is important to point out that the change is even more evident from the arrival of the genetically modified soy in 1996.

Table nº 2 – Evolution of the hectares sown by main agricultural productions, 1980-2006

	Rise	Corn	Sunflower	Wheat	Soy	Total
1980/81	878.000	3.310.000	2.000.000	5.000.000	2.100.000	13.288.000
1996/97	226.573	4.153.400	3.119.750	7.366.850	6.669.500	21.536.073
2001/02	126.519	3.064.276	2.050.365	7.108.900	11.639.240	23.989.300
2005/06	169.240	3.178.070	2.048.350	5.212.450	15.900.000	26.508.110
Var. 1980/96	**-74%**	**25%**	**56%**	**47%**	**218%**	**62%**
Var. 1996/02	**-44%**	**-26%**	**-34%**	**-4%**	**75%**	**11%**
Var. 1996/06	**34%**	**4%**	**0%**	**-27%**	**37%**	**10%**
Var. 1980/06	**-81%**	**-4%**	**2%**	**4%**	**657%**	**99%**

Source: Own elaboration using the information provided by SAGYP

The transformation experienced inside the agricultural sector has been very important and proof of it can be given by the evolution of the soy sown fields; which went in 1980 from 16% of the total sown fields while in 2005-06 it has 60% of the total land. This favorable evolution of the agricultural sector (that duplicated the total sown area in the

last 25 years) compared with the lean performance of the cattle activity, was determined in part by the accumulation model established by the dictatorship and continued as we saw by the democratic governments that followed during the eighties and nineties[9].

IV. Challenges for the future

The aim of this paper was to study the economic policies applied by the Argentinean governments during the period of 1980-2006 in order to identify their impact on the agricultural sector, with the aim of evaluating the changes that took place on the production process and on the profitability of the main products. As we saw, the agriculture sector has been central over the economic history of the country not only because of the alimentary contribution but also due to flow of income generated by the exportation of its products.

The military coup that seized power transformed the basis of the accumulation pattern of the country which went from industrialization by import substitution to a model based on the financial valorization of capital. The main objectives of the de facto government were to eliminate all State intervention and regarding the agricultural sector, the goal was to raise productivity, expanding the agricultural frontier and modernize the sector with the incorporation of new technology.

The first constitutional government that assumed in 1983 consolidated the transformation of the accumulation model, while Menem's administration took the relationship to the next level. The main policies applied were the deregulation and liberalization of the economy combined with the instauration of the Convertibility Plan. In this sense, en overrated rate of exchange, in a context of total complete liberalization of the markets, without any control of the agricultural production, proved to be very prejudicial for the sector.

As a result of these economic policies, the agricultural sector has undergone enormous transformations in the last twenty five years. As we saw, the economic policies applied since the eighties in the country did not modify the agriculture participation on GDP,

[9] For more information regarding the determinants of the bovine evolution see Cuccia, (1983; 1988), Yver, (1965), Basualdo y Arceo (2006).

and its production can be analyzed under three periods: 1980-1987, 1987-1996 and 1996-2006; which were modified by changes in relative prices, the appearances of diseases (as the hoof-and-mouth disease), technological advances and government policies. But fundamentally, the key element to understand the evolution of the sector is given by the evolution of relative profitability.

While almost 90% of the production is concentrated on five agricultural products (soy, wheat, corn, sunflower and rise) and animal's creed, there were differences not only in the evolution of the exploitation margins (especially since 1996 and the use of the transgenic seed), but also on the profitability magnitudes of both types of productions. Because of the higher relative profitability of the soy regarding to the cattle farming, two processes occurred. First, a re-localization process of the cattle took place and the producers has moved the livestock every year to less productive lands, leaving the better ones for soy cultivation. Second, soy advanced not only gained land over the cattle production, but also over the rest of the agricultural productions.

Throughout this process and in particular during this last period, the State has played an essential role not only through the application of market deregulation but also the economic policies that helped the imports of technology from developed countries. However, the new productive system implanted during the last years has made possible to increase the cultivation yields but with environmental, economic and social consequences that has only been recently evaluated (Pengue, 2000).

In this context, it seems clear that the actual agricultural model, based in the genetically modified soy and its technological package, has the following implications. First, as Pengue (2004) shows, the movement toward mono-production of the agricultural sector call into question the sustainability of the whole national productive system and post serious limitations to the capacity of the country to self finance its development process. Second, there is an impressive economic and technological dependence that this production model is posing to the country since all major innovation are developed by firms in advanced countries. Third, the actual model has generated a process of concentration and centralization of land property among few producers and has eliminated most small and medium producers. Fourth, the intensive use of agro-chemicals with minimum regulations from the State, is eroding and poisoning the usable

and non usable land. In this respect, forest elimination reduces the retention of rain water, increases the evaporation and the erosive process, accentuates the magnitude of the thermal fluctuations and decreases the native bio-diversity. Finally, the current model raise serious doubts about the capacity that the country has to sustain its food sovereignty since many agricultural products has been replaced by soy.

The challenge for the future is to build a new model of development for the sector. A model that requires an active State, not only able to apply policies which are coordinated with a long run plan of economic development, but also to protect the environment, guarantee the food sovereignty and control the process of concentration and centralization of the sector. And this State will only be possible if the working class is able to coordinate its efforts in order to confront capital. The task is ours.

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